Tho Davidson F.R.S.

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THE
GEOLOGICAL MAGAZINE.

No. LXXXII.—APRIL, 1871.

EMINENT LIVING GEOLOGISTS.

Sketch of the Scientific Life of Thomas Davidson, F.R.S.

(With a Portrait.)

THERE are but few men who, having passed many of the best years of their lives in almost constant retirement, have achieved so vast an amount of solid and lasting work, have attained to so high a position amongst their fellow-workers, and the award of whose numerous and well-merited honours has caused greater satisfaction among his scientific brethren than Thomas Davidson, Esq., of Muirhouse, F.R.S., F.G.S., Vice-President of the Palæontographical Society; Member of the Geological Societies of France, Edinburgh, and Glasgow; Member étranger de l'Institut des Provinces, France, and Linnean Society of Normandy; Imperial Mineralogical Society of St. Petersburg and of the Imperial Society of Naturalists of Moscow; Royal Academies of Belgium and of Bavaria; Société Royale Hollandaise des Sciences, Haarlem; Royal Society of Liège; Academy of St. Louis; American Philosophical Society, Philadelphia; Zoological Society of Vienna; Palæontological Society of Belgium; Hon. Member of the Geologists' Association, the Dudley and Midland Geological and Scientific Society, etc.

He was born in Edinburgh 17th of May, 1817, and his parents possessed considerable landed property in the county of Midlothian.

At six years of age he was taken to the Continent, and with the exception of occasional visits to Scotland was entirely educated in France, Switzerland, and Italy, under the direction of French and Italian tutors.

At eleven years of age (it would appear) he had already evinced a marked predilection for the study of Natural History, as well as for that of the fine arts, and consequently every effort was made by his parents in order to secure for him the great advantages which Paris affords to the scientific and artistic student. During five or six years young Davidson followed the classes of Cordier, Elie de Beaumont, Constant Prevost, Dufrenoy, Geoffroy Saint Hilaire, Dumeril, Valenciennes, de Blainville, Milne Edwards, Audouin, Brongniart, Pouillet, Baron Thénard, and other great masters in science; these admirable lectures being delivered free of charge to those who attend them, at the Sorbonne, Jardin des Plantes, École des Mines, and College de France, the French Government defraying all expenses.

In 1832 the study of Sir Charles Lyell's "Principles of Geology," as well as the intimacy which had sprung up between Constant Prevost and Davidson, led the latter to bestow greater attention upon the sciences of geology and palæontology, so much so that at fifteen years of age he had already, under the guidance of Constant Prevost, explored the larger portion of the Basin of Paris, and formed a remarkably good collection of its rocks and fossils.

In 1835 Davidson matriculated at the University of Edinburgh, followed the lectures of Prof. Jamieson, and the chemical class of Dr. Reed; he also accompanied and assisted Mr. R. Cunninghame in his geological survey of the three Lothians.

In the winter of 1836 he returned to the Continent, and, hammer in hand, and chiefly on foot, explored a large portion of France, Belgium, Switzerland, Germany and Italy.

Soon after 1837 Mr. Davidson became acquainted with Baron von Buch, and was strongly urged by that distinguished Prussian geologist to undertake a minute and searching study of the recent and fossil Brachiopoda, and especially so as that important division of the Invertebrata was then very little understood. He likewise pointed out to him the great advantages geology might reap from a successful elaboration of the class. Davidson therefore set to work in good earnest, and gradually assembled all that might tend to elucidate their characters, classification, history, and their geological and geographical distribution. From 1837 to 1870 he has devoted all his powers (and without any pecuniary reward) to advance that portion of palæontology, as well as to stimulate researches upon the same subject by others.

Mr. Davidson also indulged to a considerable extent his taste for the fine arts, and was during four years an attentive and favoured pupil of Paul Delaroche. He exhibited a cartoon at Westminster Hall, and pictures at different exhibitions. He studied also for two years at the École des Beaux Arts, and there received instruction from Horace Vernet and other distinguished French Academicians. Indeed, he was urgently solicited by Paul Delaroche and others to abandon the pursuit of science, and to give himself up entirely to the art of painting, and with that intention spent the winter of 1841 in Rome; but the early implanted love for scientific researches at last predominated, and he subsequently made use of his knowledge of drawing as a most important auxiliary to his scientific labours.

In 1846 and 1847 Mr. Davidson devoted much time to a careful examination of a large portion of Sir R. Murchison's Silurian District, and after a short sojourn in Paris in 1848 (having been present at the Revolutions of 1830 and 1848) he was requested by Professors E. Forbes, J. Morris, S. P. Woodward, and Dr. Bowerbank to prepare a monograph of British fossil Brachiopoda for the Palæontographical Society. The publication of the first portion of that monograph was commenced in 1850, and terminated in 1870. The work is composed of three thick quarto volumes, and is illustrated with 171 plates, drawn upon stone by his own hands. The labour in connexion with this work has been enormous, necessitating much field as well as cabinet labour, but the undertaking was so favourably viewed, both at home and abroad, that he received every possible encouragement and assistance from every person to whom he had occasion to apply, so that the number of specimens that passed through his hands for examination during the last thirty or more years has been perfectly surprising. It became necessary in 1853 that he should propose a new classification for the entire group, and this part of the work soon went through a French and German edition. His general introduction was revised by himself, and translated into French and German by M. E. Deslongchamps and his son, and by Dr. Suess and Count Marshall, of Vienna; Prof. Owen, Dr. Carpenter, and Sir R. Murchison likewise kindly contributed chapters to the book.

During the period employed in the preparation of his English work Davidson's attention was continually directed to the study of the recent and of foreign fossil species, as it was necessary to institute a comparison between those found in other parts of the world and those that occur in Great Britain, and likewise to ascertain what was the geological and geographical distribution of the whole group. The study of the soft parts of the animal was also carefully prosecuted. Some of the results of these investigations have been contributed to the Quarterly Journal of the Geological Society, the Bulletin de la Société Geologique de France, the Annals and Mag. of Nat. Hist., the Geologist and GEOLOGICAL MAGAZINE, the London Geological Journal, Proc. of Linnean Soc. of Normandy, Zool. Soc. of London, Transactions of the Geological Society of Glasgow and Royal Society of Liège, etc.

In 1858 Mr. Davidson was elected one of the Honorary Secretaries of the Geological Society of London.

On the 17th of February, 1865, Mr. Davidson received from the Council of the Geological Society the Wollaston Gold Medal, and on the 25th of September, 1868, Sir R. Murchison presented him with a Silurian Medal (Survey) for his "Illustrations and History of Silurian Life."

In December, 1870, Mr. Davidson was awarded the Gold Medal of the Royal Society in recognition of his valuable contributions to Palæontology.

At the Anniversary Meeting of the Palæontographical Society (March 31st) this year, the Council of that Society presented to Mr. Davidson a copy of his magnificent work on British Fossil Brachiopoda, handsomely bound, as a small expression of their high estimation of his valuable and protracted labours for the promotion of the objects of the Society.

List of Mr. Davidson's published works.

1. British Fossil Brachiopoda. 3 volumes in quarto. 1258 pages. 171 plates. 1850–1871.
2. Remarks on some Species of Brachiopoda. London Geol. Journal, 1847. 8 pages. 1 plate.

3. Observations on some Wenlock Limestone Brachiopoda, with descriptions of several New species. London Geol. Journal, 1847. 14 pages. 2 plates.
4. Plate representing four specimens of *Hypanthocrinites granulosus* (Lewis). London Geol. Journal, 1847. 1 plate.
5. Descriptions of some Species of Brachiopoda (in conjunction with Prof. Morris). Annals and Mag. of Nat. Hist. 2nd series. 1847. 9 pages. 2 plates.
6. Mémoire sur les Brachiopodes du Système Silurien Supérieur de l'Angleterre. Bull. Soc. Geol. de France. vol. v., 2nd series, 1848. 30 pages. 2 plates.
7. Réponse aux observations faites par M. Deshayes dans la Seance du 8 May, 1848. 5 pages.
8. Note sur le *Magas pumilus* (Sow.), in conjunction with Mr. Bouchard. Bull. Soc. Geol. de France. vol. v., 2nd series. 1848. 8 pages. 1 plate.
9. Observations sur quelques Brachiopodes Siluriens. Bull. Soc. Geol. de France. vol. vi., 2nd series, 1849. 4 pages.
10. Note sur quelques éspèces de *Leptæna* du Lias et du Marlstone de France et d'Angleterre. Bull. Soc. Geol. de France. 2nd series, vol. vi., 1849. 4 pages.
11. Mémoire sur quleques Brachiopodes Nouveaux ou peu connus. Bull. Soc. Geol. de France. vol. viii., p. 62, 1849. 13 pages. 1 plate.
12. Notes on an Examination of Lamarck's Species of Fossil Terebratulæ, and on the Internal Structure of *T. pectunculoides*, etc. Annals and Mag. of Nat. Hist. 2nd series, vol. v., 1850. 22 pages. 3 plates.
13. Notes and descriptions of a few Brachiopoda, including a Monograph of French Liassic Spirifers. Annals and Mag. of Nat. Hist. 2nd series, vol. ix., 1852. 19 pages. 3 plates.
14. Sketch of a Classification of recent Brachiopoda, based upon internal organisation. Annals and Mag. of Nat. Hist. 2nd series, vol. ix., 1852. 17 pages, and numerous woodcuts.
15. On some recent species of Brachiopoda. Proc. of the Zool. Soc. of London, 1852. 9 pages. 1 plate.
16. Lettre sur la Classification des Brachiopodes. Bull. Soc. Geol. de France. 2nd series, vol. x., 1853. 4 pages.
17. Sur les *Obolus* Anglais. Bull. Soc. Geol. de France. vol. x., 1853. 2 pages.
18. On some Fossil Brachiopoda of the Devonian Age from China. Quarterly Journal Geol. Soc., vol. ix. 1853. 7 pages. 1 plate.
19. Observations on the *Chonetes comoides*. Quarterly Journal Geol. Soc., vol. x., p. 202. 1854. 5 pages. 1 quarto plate.
20. Lettre sur la distribution Géologique des Brachiopodes vivants, Tertiaires, Crétacées et Jurassiques des Iles Britanniques. Bull. Soc. Geol. de France. 2nd series. vol. xi. 1854. 14 pages.
21. A few remarks on the Brachiopoda, etc. Annals and Mag. of Nat. Hist. 1855. 17 pages. 1 plate.
22. Revised French Edition of his General Introduction (translated by M. Deslongchamps). 200 pages. 9 quarto plates. 1856.
23. Revised German Edition of his General Introduction (translated by Dr. Suess and Count Marshall). Vienna, 1856. 160 pages. 5 plates. Quarto.
24. Notes sur les genres *Athyris*, *Camarophoria*, *Orthesina* et *Strophomena*, des terrains Permiens de l'Angleterre. Bull. Soc. Linn., of Normandy, vol. ii. 1857. 12 pages. 2 plates.
25. On the genera and sub-genera of Brachiopoda that are provided with spiral appendages, etc. 23 pages. 1 folio plate. The Geologist, 1858. This paper was translated into French by D. L. de Koninck, and published in the Proc. of the Royal Soc. of Liège for 1859.
26. On the families Strophomenidæ and Productidæ. The Geologist, 1859. 21 pages. 2 quarto plates.
27. On *Spirifer convolutus* (Phil.). The Geologist, 1859. 3 pages. 1 woodcut.
28. A Monograph of Scottish Carboniferous Brachiopoda. The Geologist for 1859 and 1860. 80 pages. 5 quarto plates.
29. On British Carboniferous Brachiopoda. The Geologist, 1861. 19 pages.
30. On Recent Brachiopoda. Annals and Mag. of Nat. Hist., 1861. 16 pages.
31. Carboniferous Brachiopoda of the Punjaub. Quarterly Journa Geol. Soc., 1861. 11 pages. 2 quarto plates.
32. Palæontological Notes on Scottish Jurassic and Cretaceous Brachiopoda. 1862. 5 pages. 1 plate.

33. Résumé du Tom. 2 de mon Ouvrage sur les Brachiopodes des Iles Britanniques. Bull. Soc. Geol. de France. 2nd series, vol. xix., 1862. 18 pages.
34. On the Lower Carboniferous Brachiopoda of Nova Scotia. Quarterly Journal Geol. Soc., 1863. 16 pages. 1 plate.
35. On recent and Tertiary Species of the genus *Thecidium*. Geol. Mag., 1864. 10 pages. 2 plates.
36. On Maltese Tertiary Brachiopoda. Annals and Mag. of Nat. Hist., 1864. 10 pages. 1 plate.
37. Notes on the Carboniferous and Jurassic Brachiopoda collected in the North-Western Himalayas, Thibet, and Cashmere. Quarterly Journal Geol. Soc., vol. xxii. 1866. 10 pages. 2 plates.
38. On the Brachiopoda from the Carboniferous Limestone and Shales of the County of Cork, in the Museum of the Geological Survey of Ireland. Description of sheet 192 of the Map of Ireland. 1866. 4 pages.
39. Notes on recent Brachiopoda from Jamaica, etc. Proc. Zool. Soc., 1866. 3 pages. 1 plate.
40. On the Genus *Syringothyris*. Geol. Mag., 1867. 5 pages. 1 plate.
41. On *Terebratula venosa*. Annals and Mag. of Nat. Hist., 1867. 3 pages, and woodcut.
42. On the Earliest Forms of British Palæozoic Brachiopoda. Geol. Mag., 1868. 14 pages. 2 plates.
43. On the Upper Silurian Brachiopoda from the Pentland Hills, etc. Trans. Geol. Soc. of Glasgow. Pal. series. 1868. 21 pages. 3 quarto plates.
44. Notes on Continental Geology. Geol. Mag. for April, May, June, and July, 1869. 38 pages.
45. Note on the Age of the Rocks containing *Ter. viator* or *Diphya*. Quart. Journ. Geol. Soc., vol. xxv. 1869. 3 pages.
46. Notes on Recent Mediterranean Brachiopoda. Annals and Mag. of Nat. Hist., 1869. 3 pages.
47. Notes on the Brachiopoda hitherto obtained from the Pebble Bed of Budleigh-Salterton. Abstract printed in Proc. of the Brit. Assoc. for 1869. The entire paper in the Quarterly Journal Geol. Soc., vol. xxvi., 1870. 19 pages. 3 plates.
48. On Italian Tertiary Brachiopoda. Geol. Mag., 1870. 27 pages. 5 plates.
49. On Japanese recent Brachiopoda (ready for press), with 2 plates. 1871.

Note.—So that he has published up to this date some 2220 pages and 244 plates!

ORIGINAL ARTICLES.

I.—Remarks upon Inversions of Carboniferous Strata in Somersetshire.

By Horace B. Woodward, F.G.S., of the Geological Survey of England.

During the past few years Mr. Charles Moore and Mr. J. McMurtrie[1] have called attention to a remarkable inversion of strata, which was indicated by the working of coal under the Mountain Limestone near Vobster, on the north of the Mendip Hills. And this fact renders necessary an important modification in the geological sections of the district.

This inverted structure seems generally to be attributed to a

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[1] C. Moore, Geol. Mag. for July, 1866, p. 331, and Quart. Journ. Geol. Soc., vol. xxiii., 1867, p. 453. In the latter publication, referring to his interesting discovery of a trap dyke, near Stoke Lane, on the Mendip Hills, Mr. Moore remarks that, by its protrusion, the Old Red Sandstone and Carboniferous rocks have been carried forward in a northerly direction, and are not only left standing vertically, but